ABSTRACT

Continuous on-line titrations based on feedback-controlled flow and the principle of compensating errors are carried out in a titration system by maintaining a constant total flow of mixed sample and titrant. The flow of the titrant is varied in response to a controller output voltage, and accordingly, the makeup sample flow also varies but inversely to the titrant flow. A detector monitors the status of the indicator color in the mixed stream.

The controller output varies upwardly or downwardly in response to the detector output. The controller initially ramps upwardly to increase titrant flow. When the detector senses a color change, it causes the controller output to reverse and ramp downwardly. This reduces the titrant flow until another color change is detected, which again reverses the controller output. This is repeated to obtain an accurate equivalence flow rate by compensating for the lag time between the occurrence of an equivalence in the mixed stream and its detection.